

What is claimed:

1. An isolated nucleic acid molecule which encodes a TLT-1 polypeptide, or a complement thereof, wherein the TLT-1 polypeptide can modulate platelet function.

5

2. The nucleic acid molecule of claim 1, wherein the TLT-1 polypeptide is membrane-bound, or a complement thereof.

3. The nucleic acid molecule of claim 1, wherein the TLT-1 polypeptide is a soluble TLT-1 extracellular domain, or a complement thereof.

10

4. The nucleic acid molecule of claim 1, which encodes a murine TLT-1 polypeptide, or a complement thereof.

15

5. The nucleic acid molecule of claim 1, which encodes a human TLT-1 polypeptide, or a complement thereof.

6. An isolated nucleic acid molecule comprising the nucleotide sequence set forth in SEQ ID NO:1, 3, 4, 6, 18, 20, 21, 23, 24, or 26, or a complement thereof.

20

7. An isolated nucleic acid molecule which encodes a polypeptide comprising the amino acid sequence set forth in SEQ ID NO:2, 5, 19, 22, or 25, or a complement thereof.

8. An isolated nucleic acid molecule selected from the group consisting of:

25

(a) a nucleic acid molecule comprising a nucleotide sequence which is at least about 97% identical to the nucleotide sequence of SEQ ID NO:1 or 3, or a complement thereof;

(b) a nucleic acid molecule comprising a nucleotide sequence which is at least about 60% identical to the nucleotide sequence of SEQ ID NO:1, 3, 4, 6, 18, 20, 21, 23, 24, or 26, or a complement thereof, or a complement thereof;

30

(c) a nucleic acid molecule comprising at least 487 nucleotides of SEQ ID NO:1 or 3, or a complement thereof;

(d) a nucleic acid molecule comprising at least 336 nucleotides of SEQ ID NO: 4 or 6, or a complement thereof;

(e) a nucleic acid molecule comprising at least 30 nucleotides of SEQ ID NO:1, 3, 4, 6, 18, 20, 21, 23, 24, and 26, or a complement thereof

5 (f) a nucleic acid molecule which encodes a polypeptide comprising an amino acid sequence which is at least about 99% identical to the amino acid sequence of SEQ ID NO:2, or a complement thereof;

(g) a nucleic acid molecule which encodes a polypeptide comprising an amino acid sequence which is at least about 81% identical to the amino acid sequence of SEQ ID
10 NO:5, or a complement thereof;

(h) a nucleic acid molecule which encodes a polypeptide comprising an amino acid sequence which is at least about 60% identical to the amino acid sequence of SEQ ID NO:2, 5, 19, 22, or 25, or a complement thereof;

(i) a nucleic acid molecule which encodes at least 173 contiguous amino acid
15 residues of SEQ ID NO:2, or a complement thereof;

(j) a nucleic acid molecule which encodes at least 111 contiguous amino acid residues of SEQ ID NO:5, or a complement thereof; and

(k) a nucleic acid molecule which encodes at least 10 contiguous amino acid residues of SEQ ID NO:2, 5, 19, 22, or 25, or a complement thereof.

20

9. An isolated nucleic acid molecule which hybridizes to a complement of the nucleic acid molecule of any one of claims 1-8 under stringent conditions.

10. An isolated nucleic acid molecule comprising the nucleic acid molecule of any
25 one of claims 1-8 and a nucleotide sequence encoding a heterologous polypeptide.

11. A vector comprising the nucleic acid molecule of any one of claims 1-8.

12. The vector of claim 11, which is an expression vector.

30

13. A host cell transfected with the expression vector of claim 12.

14. A method of producing a polypeptide comprising culturing the host cell of claim 13 in an appropriate culture medium to, thereby, produce the polypeptide.

5 15. An isolated TLT-1 polypeptide, wherein the TLT-1 polypeptide can modulate platelet function.

16. The polypeptide of claim 15, wherein the TLT-1 polypeptide is membrane-bound.

10

17. The polypeptide of claim 15, wherein the TLT-1 polypeptide is a soluble TLT-1 extracellular domain.

18. The polypeptide of claim 15, which encodes a murine TLT-1 polypeptide.

15

19. The polypeptide of claim 15, which encodes a human TLT-1 polypeptide.

20. An isolated polypeptide comprising the amino acid sequence of SEQ ID NO:2, 5, 19, 22, or 25.

20

21. An isolated polypeptide selected from the group consisting of:

(a) a polypeptide comprising at least 173 contiguous amino acid residues of SEQ ID NO:2;

(b) a polypeptide comprising at least 111 contiguous amino acid residues of SEQ

25 ID NO:5;

(c) a polypeptide comprising at least 10 contiguous amino acid residues of SEQ ID NO:2, 5, 19, 22, or 25.

(d) a polypeptide which is encoded by a nucleic acid molecule comprising a nucleotide sequence which is at least about 97% identical to the nucleotide sequence of SEQ ID NO:1 or 3;

30

(e) a polypeptide which is encoded by a nucleic acid molecule comprising a nucleotide sequence which is at least about 60% identical to the nucleotide sequence of SEQ ID NO:1, 3, 4, 6, 18, 20, 21, 23, 24, and 26;

(f) a polypeptide comprising an amino acid sequence which is at least about 99% identical to the amino acid sequence of SEQ ID NO:2;

(g) a polypeptide comprising an amino acid sequence which is at least about 81% identical to the amino acid sequence of SEQ ID NO:5; and

(h) a polypeptide comprising an amino acid sequence which is at least about 60% identical to the amino acid sequence of SEQ ID NO:2, 5, 19, 22, or 25.

10

22. The polypeptide of any one of claims 15-21, further comprising heterologous amino acid sequences.

23. An antibody which selectively binds to a polypeptide of any one of claims 15-21.

15

24. A method for detecting the presence of a polypeptide of any one of claims 15-21 in a sample comprising:

a) contacting the sample with a compound which selectively binds to the polypeptide; and

20

b) determining whether the compound binds to the polypeptide in the sample to thereby detect the presence of a polypeptide of any one of claims 15-21 in the sample.

25. The method of claim 24, wherein the compound which binds to the polypeptide is an antibody.

25

26. A kit comprising a compound which selectively binds to a polypeptide of any one of claims 15-21 and instructions for use.

27. A method for detecting the presence of a nucleic acid molecule of any one of claims 1-8 in a sample comprising:

30

a) contacting the sample with a nucleic acid probe or primer which selectively hybridizes to the nucleic acid molecule; and

b) determining whether the nucleic acid probe or primer binds to a nucleic acid molecule in the sample to thereby detect the presence of a nucleic acid molecule of any one of
5 claims 1-8 in the sample.

28. The method of claim 27, wherein the sample comprises mRNA molecules and is contacted with a nucleic acid probe.

10 29. A kit comprising a compound which selectively hybridizes to a nucleic acid molecule of any one of claims 1-8 and instructions for use.

30. A method for identifying a compound which binds to a polypeptide of any one of claims 15-21 comprising:

15 a) contacting the polypeptide, or a cell expressing the polypeptide with a test compound; and
b) determining whether the polypeptide binds to the test compound.

31. The method of claim 30, wherein the binding of the test compound to the
20 polypeptide is detected by a method selected from the group consisting of:

a) detection of binding by direct detection of test compound/polypeptide binding;
b) detection of binding using a competition binding assay; and
c) detection of binding using an assay for TLT-1 activity.

25 32. A method for modulating the activity of a polypeptide of any one of claims 15-21 comprising contacting the polypeptide, or a cell expressing the polypeptide, with a compound which binds to the polypeptide in a sufficient concentration to modulate the activity of the polypeptide.

30 33. A method for identifying a compound which modulates the activity of a polypeptide of any one of claims 15-21 comprising:

a) contacting a polypeptide of any one of claims 15-21 with a test compound;
and

b) determining the effect of the test compound on the activity of the polypeptide to thereby identify a compound which modulates the activity of the polypeptide.

5

34. A method for identifying a compound capable of treating a disorder selected from the group consisting of septic shock, cancer, infectious disease, stroke, heart disease, myocardial infarction, arteriosclerosis, clotting disorders, bleeding disorders, platelet insufficiency, and a TLT-1 associated disorder, comprising assaying the ability of the
10 compound to modulate TLT-1 nucleic acid expression or TLT-1 polypeptide activity, thereby identifying a compound capable of treating a disorder selected from the group consisting of septic shock, cancer, infectious disease, stroke, heart disease, myocardial infarction, arteriosclerosis, clotting disorders, bleeding disorders, platelet insufficiency, and a TLT-1 associated disorder.

15

35. A method for treating a subject having a disorder selected from the group consisting of septic shock, cancer, infectious disease, stroke, heart disease, myocardial infarction, arteriosclerosis, clotting disorders, bleeding disorders, platelet insufficiency, and a TLT-1 associated disorder, comprising administering to the subject a therapeutically effective
20 amount of a TLT-1 modulator, thereby treating said subject having a disorder selected from the group consisting of septic shock, cancer, infectious disease, stroke, heart disease, myocardial infarction, arteriosclerosis, clotting disorders, bleeding disorders, platelet insufficiency, and a TLT-1 associated disorder.

25

36. The method of claim 35, wherein the TLT-1 modulator is a TLT-1 polypeptide.

37. The method of claim 36, wherein the TLT-1 polypeptide is a soluble TLT-1 extracellular domain.

30

38. The method of claim 35, wherein the TLT-1 modulator is an antibody that selectively binds to TLT-1.